REMARKS

Claims 1-17 remain in the application and have been amended hereby.

As will be noted from the Declaration, Applicants are citizens and residents of Japan and this application originated there.

Accordingly, the amendments made to the specification are provided to place the application in idiomatic English, and the claims are amended to place them in better condition for examination.

An early and favorable examination on the merits is earnestly solicited.

Respectfully submitted,
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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE ABSTRACT OF THE DISCLOSURE

Please amend the Abstract by rewriting same to read as follows.

In order to improve various characteristics of a receiving circuit for digital [audio] radio services, circuits are provided for forming two local oscillation signals, whose frequencies are both the center frequency between a first ensemble and a second ensemble, and whose phases differ by 90° from each other. Furthermore, there [is] are provided mixer circuits for frequency-converting the received signal into intermediate frequency signals in accordance with the local oscillation signals, phase-shift circuits to which the intermediate frequency signals are supplied, and an addition/subtraction circuit for performing one of addition and subtraction of the outputs of the phase-shift circuits. In addition, there [is] are provided intermediate frequency filters to which the output signal of the addition/subtraction circuit is supplied[,] and demodulation circuits to which the output signals of the intermediate frequency filters are supplied. By switching the process in the addition/subtraction circuit to [the] addition or [the] subtraction, the signals of the first ensemble and the second ensemble are selectively extracted from the demodulation circuits.

IN THE CLAIMS

Please claims 1-17 by rewriting same to read as follows.

--1. (Amended) A receiving device comprising:

a receiving circuit for receiving a first signal and a second signal [which are] transmitted at mutually different frequencies;

a circuit for forming first and second local oscillation signals[, whose] having frequencies [are both the] at a center frequency between said first signal and said second signal[,] and [whose] having phases that differ by 90° from each other;

a first mixer circuit for frequency-converting [the] a received signal received by said receiving circuit into a first intermediate frequency signal in accordance with said first local oscillation signal;

a second mixer circuit for frequency-converting the received signal received by said receiving circuit into a second intermediate frequency signal in accordance with said second local oscillation signal;

a first phase-shift circuit to which said first intermediate frequency signal is supplied;

a second phase-shift circuit to which said second intermediate frequency signal is supplied, in which the amount of [the] phase shift in said second phase-shift circuit differs by 90° from [that] an amount of phase shift of said first phase-shift circuit; and

an addition/subtraction circuit for switchably performing one of addition and subtraction between [the] an output signal of said first phase-shift circuit and [the] an output signal of said second phase-shift circuit,

wherein, by switching [the process in] said addition/subtraction circuit to [said] perform addition or [said] subtraction, the intermediate frequency signal corresponding to said first signal or the intermediate frequency signal

corresponding to said second signal is selectively extracted from said addition/subtraction circuit.

--2. (Amended) A receiving device for receiving a multiplexed signal in which a first ensemble having signals of a first plurality of programs and a second ensemble having signals of a second plurality of programs are frequency-multiplexed and transmitted[,] and for extracting[,] from [this] the multiplexed received signal[,] one of the signals within said signals of the first plurality of programs and said signals of the second plurality of programs, said receiving device comprising:

a circuit for forming first and second local oscillation signals[, whose] having frequencies [are both the] at a center frequency between said first ensemble and said second ensemble[,] and [whose] having phases that differ by 90° from each other;

a first mixer circuit for frequency-converting said received signal into a first intermediate frequency signal in accordance with said first local oscillation signal;

a second mixer circuit for frequency-converting the received signal into a second intermediate frequency signal in accordance with said second local oscillation signal;

a first phase-shift circuit to which said first intermediate frequency signal is supplied;

a second phase-shift circuit to which said second intermediate frequency signal is supplied, in which the amount of [the] phase shift in said second phase-shift circuit differs by 90° from [that] an amount of phase-shift of said first phase-shift circuit; and

an addition/subtraction circuit for switchably performing one of addition and subtraction between [the] an output signal of said first phase-shift circuit and [the] an output signal of said second phase-shift circuit,

wherein, by switching [the process in] said addition/subtraction circuit to [said] perform addition or [said] subtraction, the first intermediate frequency signal [corresponding to said first signal] or the second intermediate frequency signal [corresponding to said second signal] is selectively extracted from said addition/subtraction circuit.

--3.(Amended) [A] The receiving device according to Claim 2, further comprising:

an intermediate frequency filter to which the output signal of said addition/subtraction circuit is supplied; and

a demodulation circuit to which [the] an output signal of the intermediate frequency filter is supplied,

wherein, by switching [the process in] said addition/subtraction circuit to [said] perform addition or [said] subtraction, the signals of said first plurality of programs or the signals of said second plurality of programs are selectively extracted from said demodulation circuit.

--4. (Amended) [A] The receiving device according to Claim 3, wherein, when each of said first ensemble and said second ensemble has a terrestrial-wave signal and a satellite-wave signal which are frequency-divided,

said intermediate frequency filter comprises first and second intermediate frequency filters,

said demodulation circuit comprises first and second demodulation circuits,

the output signal of said addition/subtraction circuit is supplied to each of said first and second intermediate frequency filters, whereby the intermediate frequency signal of said terrestrial-wave signal and the intermediate frequency signal of

said satellite-wave signal are extracted from said first and second intermediate frequency filters, and

the intermediate frequency signals [which are] output from said first and second intermediate frequency filters are supplied to said first and second demodulation circuits, respectively.

--5. (Amended) A receiving device comprising:

a receiving circuit for receiving a first signal and a second signal [which are] transmitted at mutually different frequencies;

a circuit for forming first and second local oscillation signals[, whose] <u>having</u> frequencies [are both the] <u>at a</u> center frequency between said first signal and said second signal[,] and [whose] <u>having</u> phases <u>that</u> differ by 90° from each other;

a first mixer circuit for frequency-converting the received signal received by said receiving circuit into a first intermediate frequency signal in accordance with said first local oscillation signal;

a second mixer circuit for frequency-converting the received signal received by said receiving circuit into a second intermediate frequency signal in accordance with said second local oscillation signal;

a first phase-shift circuit to which said first intermediate frequency signal is supplied;

a second phase-shift circuit to which said second intermediate frequency signal is supplied, in which the amount of [the] phase shift <u>in said second phase-shift circuit</u> differs by 90° from [that] <u>an amount of phase shift</u> of said first phase-shift circuit; and

an addition circuit for performing addition of the output signal of said first phase-shift circuit and the output signal of said second phase-shift circuit; and

a circuit for <u>selectively</u> inverting or non-inverting the phase

of one of the [signals of the] output signal of said first phase-shift circuit and the output signal of said second phase-shift circuit[, which are] supplied to said addition circuit,

wherein, by switching between said [inversion] inverting or said [non-inversion] non-inverting, the intermediate frequency signal corresponding to said first signal or the intermediate frequency signal corresponding to said second signal is selectively extracted from said addition circuit.

--6. (Amended) [A] The receiving device according to Claim 5, wherein said [phase] circuit for selectively inverting or non-inverting [circuit] is a circuit for inverting or non-inverting the phase of one of the signals of said first and second local oscillation signals.

--7. (Amended) [A] The receiving device according to Claim 5, wherein said [phase] circuit for selectively inverting or non-inverting [circuit] is a circuit for inverting or non-inverting the phase of one of the signals of said first and second intermediate frequency signals.

--8. (Amended) A receiving device for receiving a multiplexed signal in which a first ensemble having signals of a first plurality of programs and a second ensemble having signals of a second plurality of programs are frequency-multiplexed and transmitted[,] and for extracting[,] from [this] the multiplexed received signal[,] one of the signals within said signals of the first plurality of programs and said signals of the second plurality of programs, said receiving device comprising:

a circuit for forming first and second local oscillation signals[, whose] having frequencies [are both the] at a center

frequency between said first ensemble and said second ensemble[,] and [whose] having phases that differ by 90° from each other;

a first mixer circuit for frequency-converting the received signal into a first intermediate frequency signal in accordance with said first local oscillation signal;

a second mixer circuit for frequency-converting the received signal into a second intermediate frequency signal in accordance with said second local oscillation signal;

a first phase-shift circuit to which said first intermediate frequency signal is supplied;

a second phase-shift circuit to which said second intermediate frequency signal is supplied, in which [the] an amount of [the] in said second phase-shift circuit phase shift differs by 90° from [that] an amount of phase shift of said first phase-shift circuit;

an addition circuit for performing addition of the output signal of said first phase-shift circuit and the output signal of said second phase-shift circuit; and

a circuit for selectively inverting or non-inverting the phase of one of [the signals of] said first and second intermediate frequency signals,

wherein, by switching between said [inversion] inverting or said [non-inversion] non-inverting, the intermediate frequency signal corresponding to said first signal or the intermediate frequency signal corresponding to said second signal is selectively extracted from said addition circuit.

--9. (Amended) [A] The receiving device according to Claim 8, further comprising:

an intermediate frequency filter to which the output signal of said addition circuit is supplied; and

a demodulation circuit to which [the] an output signal of the

intermediate frequency filter is supplied,

wherein, by switching between said [inversion] inverting or said [non-inversion] non-inverting, the signals of said first plurality of programs or the signals of said second plurality of programs are selectively extracted from said demodulation circuit.

--10. (Amended) [A] The receiving device according to Claim 9, wherein, when each of said first ensemble and said second ensemble has a terrestrial-wave signal and a satellite-wave signal which are frequency-divided,

said intermediate frequency filter comprises first and second intermediate frequency filters,

said demodulation circuit comprises first and second demodulation circuits,

the output signal of said [addition/subtraction] addition circuit is supplied to each of said first and second intermediate frequency filters, whereby the intermediate frequency signal of said terrestrial-wave signal and the intermediate frequency signal of said satellite-wave signal are extracted from said first and second intermediate frequency filters, and

the intermediate frequency signals [which are] output from said first and second intermediate frequency filters are supplied to said first and second demodulation circuits, respectively.

--11. (Amended) [A] The receiving device according to Claim 10, further comprising a selecting/combining circuit for selecting or combining the demodulated outputs of said first and second demodulation circuits and for outputting the demodulated outputs.

--12. (Amended) [A] The receiving device according to Claim 8, wherein said [phase] circuit for selectively inverting or

non-inverting [circuit] is a circuit for inverting or non-inverting the phase of one of the signals of said first and second local oscillation signals.

--13. (Amended) [A] The receiving device according to Claim 8, wherein said [phase] circuit for selectively inverting or non-inverting [circuit] is a circuit for inverting or non-inverting the phase of one of the signals of said first and second intermediate frequency signals.

--14. (Amended) An integrated circuit for reception comprising:

a high-frequency amplifier for receiving a first signal and a second signal [which are] transmitted at mutually different frequencies;

a circuit for forming first and second local oscillation signals[, whose] having frequencies [are both the] at a center frequency between said first signal and said second signal, and [whose] having phases that differ by 90° from each other;

a first mixer circuit for frequency-converting the received signal received by said high-frequency amplifier into a first intermediate frequency signal in accordance with said first local oscillation signal;

a second mixer circuit for frequency-converting the received signal received by said high-frequency amplifier into a second intermediate frequency signal in accordance with said second local oscillation signal;

a first phase-shift circuit to which said first intermediate frequency signal is supplied;

a second phase-shift circuit to which said second intermediate frequency signal is supplied, in which [the] an amount of [the]

phase shift in said second phase-shift circuit differs by 90° from [that] an amount of phase-shift of said first phase-shift circuit; and

an addition/subtraction circuit for switchably performing one of addition and subtraction between [the] an output signal of said first phase-shift circuit and [the] an output signal of said second phase-shift circuit, which are integrated into one chip,

wherein, by switching [the process in] said addition/subtraction circuit to [said] perform addition or [said] subtraction, the intermediate frequency signal corresponding to said first signal or the intermediate frequency signal corresponding to said second signal is selectively extracted from said addition/subtraction circuit.

--15. (Amended) A reception integrated circuit for receiving a multiplexed signal in which a first ensemble having signals of a first plurality of programs and a second ensemble having signals of a second plurality of programs are frequency-multiplexed and transmitted[,] and for extracting[,] from [this] the multiplexed received signal[,] one of the signals within the signals of said first plurality of programs and the signals of said second plurality of programs, said reception integrated circuit comprising:

a circuit for forming first and second local oscillation signals[, whose] having frequencies [are both the] at a center frequency between said first ensemble and said second ensemble[,] and [whose] having phases that differ by 90° from each other;

a first mixer circuit for frequency-converting the received signal into a first intermediate frequency signal in accordance with said first local oscillation signal;

a second mixer circuit for frequency-converting the received

signal into a second intermediate frequency signal in accordance with said second local oscillation signal;

a first phase-shift circuit to which said first intermediate frequency signal is supplied;

a second phase-shift circuit to which said second intermediate frequency signal is supplied, in which [the] an amount of [the] phase shift in said second phase-shift circuit differs by 90° from that an amount of phase shift of said first phase-shift circuit;

an addition/subtraction circuit for switchably performing one of addition and subtraction between the output signal of said first phase-shift circuit and the output signal of said second phase-shift circuit;

an intermediate frequency filter to which [the] an output signal of the addition/subtraction circuit is supplied; and

a demodulation circuit to which [the] an output signal of the intermediate frequency filter is supplied,

wherein, by switching [the process in] said addition/subtraction circuit to [said] perform addition or [said] subtraction, the signals of said first plurality of programs or the signals of said second plurality of programs are selectively extracted from said demodulation circuit.

--16. (Amended) A reception integrated circuit comprising:

a high-frequency amplifier for receiving a first signal and a second signal [which are] transmitted at mutually different frequencies;

a circuit for forming first and second local oscillation signals[, whose] having frequencies [are both the] at a center frequency between said first signal and said second signal, and [whose] having phases that differ by 90° from each other;

a first mixer circuit for frequency-converting the received

signal received by said high-frequency amplifier into a first intermediate frequency signal in accordance with said first local oscillation signal;

a second mixer circuit for frequency-converting the received signal received by said high-frequency amplifier into a second intermediate frequency signal in accordance with said second local oscillation signal;

a first phase-shift circuit to which said first intermediate frequency signal is supplied;

a second phase-shift circuit to which said second intermediate frequency signal is supplied, in which [the] an amount of [the] phase shift in said second phase-shift circuit differs by 90° from [that] an amount of phase-shift of said first phase-shift circuit;

an addition circuit for performing addition of the output signal of said first phase-shift circuit and the output signal of said second phase-shift circuit; and

a circuit for switchably inverting or non-inverting the phase of one of [the signals of] the output signal of said first phase-shift circuit and the output signal of said second phase-shift circuit[, which are] supplied to said addition circuit, which are integrated into one chip,

wherein, by switching between said [inversion] inverting or said [non-inversion] non-inverting, the intermediate frequency signal corresponding to said first signal or the intermediate frequency signal corresponding to said second signal is selectively extracted from said addition circuit.

--17. (Amended) A reception integrated circuit for receiving a multiplexed signal in which a first ensemble having signals of a first plurality of programs and a second ensemble having signals of a second plurality of programs are frequency-multiplexed and

transmitted[,] and for extracting[,] from [this] the multiplexed received signal[,] one of the signals within the signals of said first plurality of programs and the signals of said second plurality of programs, said reception integrated circuit comprising:

a circuit for forming first and second local oscillation signals[, whose] having frequencies [are both the] at a center frequency between said first ensemble and said second ensemble[,] and [whose] having phases that differ by 90° from each other;

a first mixer circuit for frequency-converting the received signal into a first intermediate frequency signal in accordance with said first local oscillation signal;

a second mixer circuit for frequency-converting the received signal into a second intermediate frequency signal in accordance with said second local oscillation signal;

a first phase-shift circuit to which said first intermediate frequency signal is supplied;

a second phase-shift circuit to which said second intermediate frequency signal is supplied, in which [the] an amount of [the] phase shift in said second phase-shift circuit differs by 90° from [that] an amount of phase-shift of said first phase-shift circuit;

an addition circuit for performing addition of [the] an output signal of said first phase-shift circuit and [the] an output signal of said second phase-shift circuit;

an intermediate frequency filter to which [the] an output signal of the addition circuit is supplied;

a demodulation circuit to which the output signal of [the] an intermediate frequency filter is supplied; and

a circuit for selectively inverting or non-inverting the phase of one of [the signals of] the output signal of said first phase-shift circuit and the output signal of said second

phase-shift circuit[, which are] supplied to said addition circuit, which are integrated into one chip,

wherein, by switching between said [inversion] inverting or said [non-inversion] non-inverting, the signals of said first plurality of programs and the signals of said second plurality of programs are selectively extracted from said demodulation circuit.